ABSTRACT OF THE DISCLOSURE

A remote plasma CVD apparatus is disclosed, in which oxygen gas 18 is supplied to a high frequency wave applying electrode 1 to cause reaction of oxygen radicals and oxygen molecules 21 with monisilane gas 19, which is introduced into part of a substrate processing zone R outside oxygen plasma 22. The apparatus comprises a plasma confining electrode 20, which has jetting holes for supplying monosilane gas 19 to the substrate processing zone R. The electrode 20 is spaced apart from a substrate 3 (i.e., deposition substrate) by a distance no longer than about 1,500 λ_g of the mean free path in the substrate processing zone R at the time of film formation. The member 20 has a hollow structure, and accommodates dispersing plates (i.e., a first and a second dispersing plate) for uniformalizing monosilane gas (i.e., neurtral gas) in it. Thus both of suppression of excessive progress of gas phase chemical reaction and homogeneous film formation in a remote plasma CVD apparatus for forming film by gas phase chemical reaction are realized.